IN THE CLAIMS:

1. (original) A superconducting magnetic field detection element comprising at least one superconducting pick-up loop formed on a common flexible substrate, wherein the common flexible substrate is in a non-planar position, such that the at least one superconducting pick-up loop is operable to detect magnetic fields of differing orientation.

2. (original) A superconducting magnetic field detection element according to claim 1 wherein the common flexible substrate partially extends within a first plane and partially extend within a second plane substantially perpendicular to the first plane such that the at least one superconducting pick up loop is positioned in both the first plane and the second plane.

3. (original) A superconducting magnetic field detection element according to claim 1 wherein the common flexible substrate is positioned such that the at least one superconducting pick-up loop describes an arc subtending a predetermined angle about a nominal focus.

4. (canceled)

5. (currently amended) A superconducting magnetic field detection element according to claim-4 1, comprising a plurality of pick-up loops, and wherein the common flexible substrate is arranged so as to position each of the plurality of pick up loops in a unique plane which is not coplanar with any plane in which another pick up loop is positioned.

6. (currently amended) A superconducting magnetic field detection element according to claim 5 comprising a first superconducting pick-up loop positioned in a first plane and a second superconducting pick-up loop positioned in a second plane substantially perpendicular to the first plane.

7. (currently amended) A superconducting magnetic field detection element according to claim 5 comprising a first superconducting pick-up loop positioned in a first plane and a second superconducting pick up loop positioned in a second plane substantially parallel to and spaced apart from the first plane.

8. (currently amended) A superconducting magnetic field detection element according to claim 5 comprising a first superconducting pick-up loop positioned in a first plane and a second superconducting pick-up loop positioned in a second plane such that the first superconducting pick-up loop and the second superconducting pick-up loop describe an arc

along the common flexible substrate that subtends a predetermined angle about a nominal focus.

9. (currently amended) A superconducting magnetic field detection element according to ~~any one of~~ claims 1 ~~or 6 to 8~~ wherein the common flexible substrate is selected from ~~comprises~~ Hastelloy tape and a partially or fully stabilised zirconia substrate, such as Ceraflex.

10-15. (canceled)

16. (currently amended) A superconducting magnetic field detection element according to claim 1 ~~or claim 4~~ further comprising a SQUID for detecting current induced in the at least one or multiple pick-up loops as a result of a magnetic field passing' through the at least one or multiple pick-up loops.

17. (canceled)

18. (currently amended) A superconducting magnetic field detection element according to claim 16 wherein the SQUID is magnetically coupled to the at least one or multiple pick-up loops through a flux transformer formed on the common flexible substrate.

19 -20. (canceled)

21. (currently amended) A superconducting magnetic field detection element according to claim 1 ~~or claim 4~~ wherein a minimum radius of curvature or twist of the common flexible substrate is controlled in order to avoid damage to the element.

22. (currently amended) A superconducting magnetic field detection element according to ~~any one of~~ claims 6 ~~to 8~~ wherein the common flexible substrate is twisted in order to provide circuit elements, such as a superconducting pick-up loop, in a third plane.

23. (currently amended) A method of forming an element of a superconducting device for detecting magnetic fields, the method comprising ~~the steps of~~ :

forming at least one superconducting pick-up loop on a common flexible substrate ; and positioning the common flexible substrate in a non-planar configuration such that the at least one superconducting pick-up loop is operable to detect magnetic fields of differing orientation.

24. (currently amended) A method according to claim 23 further comprising ~~the step of~~ partially extending the common flexible substrate within a first plane and partially extending the common flexible substrate within a second plane substantially. perpendicular to the first plane such that the at least one superconducting pick up loop is positioned in both the first plane and the second plane.

25. (currently amended) A method according to claim 23 further comprising ~~the step of~~ positioning the common flexible substrate such that the at least one superconducting pickup loop describes an arc subtending a predetermined angle about a nominal focus.

26. (canceled)

27. (currently amended) A method according to claim ~~26~~ 23 wherein a plurality of superconducting pick-up loops are formed on the common flexible substrate, and further comprising ~~the step of~~ arranging the common flexible substrate so as to position each of the plurality of pick up loops in a unique plane which is not coplanar with any plane in which another pick up loop is positioned.

28. (currently amended) A method according to claim 27 further comprising ~~the steps of~~ positioning a first superconducting pick-up loop in a first plane and positioning a second superconducting pick-up loop in a second plane substantially perpendicular to the first plane.

29. (currently amended) A method according to claim 27 further comprising ~~the steps of~~ positioning a first superconducting pick-up loop in a first plane and positioning a second superconducting pick-up loop in a second plane substantially parallel to and spaced apart from the first plane.

30. (currently amended) A method according to claim 27 further comprising ~~the steps of~~ positioning a first superconducting pick-up loop in a first plane and positioning a second superconducting pick-up loop in a second plane such that the first superconducting pick-up loop and the second superconducting pick-up loop describe an arc along the common flexible substrate that subtends a predetermined angle about a nominal focus.

31. (currently amended) A method according to claim 23 ~~or claim 26~~ further comprising the step of detecting current induced in the at least one or multiple pick-up loops as a result of a magnetic field passing through the at least one or multiple pick-up loops.

32 -35. (canceled)

36. (original) A superconducting gradiometer comprising: a first pick-up loop defining and substantially residing in a first nominal plane ; and a second pick-up loop defining and substantially residing in a second nominal plane ; wherein the first pick-up loop and the second pick-up loop are formed on a common flexible substrate, wherein the first nominal plane and the second nominal plane are substantially parallel, and wherein the first nominal plane and the second nominal plane are sufficiently spaced apart to allow the first pick-up loop and the second pick-up loop to act to distinguish local magnetic fields from background magnetic fields.

37. (currently amended) A superconducting gradiometer according to claim 36 that is axial and implemented through the use of a superconducting flux transformer pick-up loop structure patterned on the common flexible substrate.

38. (currently amended) A superconducting gradiometer according to claim 37 wherein the flux transformer is inductively coupled to a detection means for detecting current induced in either the first or second pick-up loops as a result of a magnetic field passing through the first or second pick-up loops.

39-40. (canceled)

41. (currently amended) A superconducting gradiometer according to claim ~~40~~ 37 further comprising a flexible strip-line conductor connecting each of the first and second pick-up loops to the flux transformer.

42-49. (canceled)

50. (currently amended) A superconducting gradiometer according to claim 41 wherein an additional length of flexible superconducting tape covers each of the strip-line, conductors forming a ground plane.

51-60. (canceled)